CONTEXT

Retinal Optical Coherence Tomography (OCT) is an non-invasive imaging test which uses light waves to take cross-section pictures of your retina.

With OCT, your ophthalmologist can see each of the retina's distinctive layers. This allows your ophthalmologist to map and measure their thickness. These measurements help with diagnosis. They also provide treatment guidance for glaucoma and diseases of the retina. These retinal diseases include age-related macular degeneration (AMD) and diabetic eye disease.

OCT is often used to evaluate disorders of the optic nerve as well. The OCT exam helps your ophthalmologist see changes to the fibers of the optic nerve. For example, it can detect changes caused by glaucoma.

OCT relies on light waves. It cannot be used with conditions that interfere with light passing through the eye. These conditions include dense cataracts or significant bleeding in the vitreous.

Approximately 30 million OCT scans are performed each year, and the analysis and interpretation of these images takes up a significant amount of time (Swanson and Fujimoto, 2017).
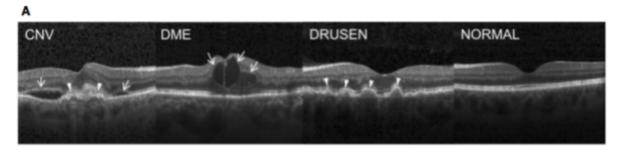
Figure 1. Representative Optical Coherence Tomography Images and the Workflow Diagram [Kermany et. al. 2018]

(Far left) -> **Choroidal Neovascularization (CNV)** with neovascular membrane (white arrowheads) and associated subretinal fluid (arrows).

(Middle left) -> **Diabetic Macular Edema (DME)** with retinal-thickening-associated intraretinal fluid (arrows).

(Middle right) -> **Multiple drusen (arrowheads)** present in early AMD.

(Far right) -> **Normal retina** with preserved foveal contour and absence of any retinal fluid/edema.